P-7.2 Use the inverse square law to determine the change in intensity of light with distance.

Revised Taxonomy Level 3.2 C_A Apply (use) procedural knowledge
Students did not address this indicator in physical science

It is essential for students to

- Understand that the quantitative study of light is called photometry and involves
  - Luminous intensity
    - Measured in candela (cd)
    - Measures the intensity of the source
  - Luminous flux
    - Symbol F, measured in lumens (lm)
    - Measures the rate at which luminous energy is being emitted, transmitted, or received
  - Illuminance
    - Symbol E, Measured in units of lm/m^2
    - Measures the density of the luminous flux on a surface
  - Understand how illuminance varies with the square of the distance from the source

Assessment
The other revised taxonomy verb for this indicator is implement (use), the major focus of assessment will be for students to show that they can "apply a procedure to an unfamiliar task". The knowledge dimension of the indicator, procedural knowledge means "knowledge of subject-specific techniques and methods" In this case the procedure for implementing, photometry equations and using an inverse-square law. A key part of the assessment will be for students to show that they can apply the knowledge to a new situation, not just repeat problems which are familiar. This requires that students have a conceptual understanding of electric charge and electric fields.